

**Claims**

- Claim 1** (Previously Presented) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises determining whether Disabled 1 protein (Dab1) in said sample is phosphorylated on a serine selected from the group consisting of a serine at position 491 of the polypeptide encoded by SEQ ID NO:4 or SEQ ID NO:5 and a serine at position 515 of the polypeptide encoded by SEQ ID NO:4 or SEQ ID NO:5, wherein phosphorylation of Dab1 on said serine indicates the presence of active Cdk5 in said sample.
- Claim 2-3** (Canceled)
- Claim 4** (Previously Presented) The method of claim 1 wherein said biological sample is isolated from an organism selected from the group consisting of mouse and human.
- Claim 5** (Previously Presented) The method of claim 1 wherein said biological sample is isolated from the group consisting of brain and blood.
- Claim 6** (Previously Presented) The method of claim 1 wherein said biological sample is isolated from a cell culture.
- Claim 7** (Original) The method of claim 1 wherein said Dab1 phosphorylation occurs *in vivo*.
- Claim 8** (Previously Presented) The method of claim 1 which comprises immunoprecipitating said Dab1 from said biological sample prior to said determining step using an antibody that binds to Dab1 phosphorylated and unphosphorylated on said serine.
- Claim 9** (Canceled)
- Claim 10** (Previously Presented) The method of claim 1 wherein Dab1 phosphorylation is determined using an antibody that binds to Dab1 only when it is phosphorylated on said serine.
- Claim 11** (Previously Presented) The method of claim 10 wherein said antibody is raised against the polypeptide fragment TPAPRQSS(PO<sub>4</sub>)PSKSSA (SEQ ID NO:3 which contains a phosphate group on the 8<sup>th</sup> amino acid).
- Claim 12** (Canceled)

- Claim 13 (Original) The method of claim 10 wherein said antibody is polyclonal.
- Claim 14 (Original) The method of claim 10 wherein said antibody is monoclonal.
- Claim 15 (Original) The method of claim 10 wherein Dab1 phosphorylation is determined by using techniques consisting of radioimmunoassay, ELISA, "sandwich" immunoassays, immunoradiometric assays, gel diffusion precipitation reactions, immunodiffusion assays, in situ immunoassays, western blots, precipitation reactions, agglutination assays, complement fixation assays, immunofluorescence assays, protein A assays, immunoelectrophoresis assays, mass spectrometry and antibody array.
- Claims 16-31 (Canceled)
- Claim 32 (Previously Presented) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises immunoprecipitation of mouse Dab1 encoded by the sequence set forth in SEQ ID NO:4 from said biological sample; contacting the immunoprecipitated Dab1 with a phosphoantibody generated using SEQ ID NO:3 having a phosphorylated serine at position 8 of SEQ ID NO:3 as an antigen; detecting binding of the phosphoantibody to serine 491 of said Dab1, wherein binding of the phosphoantibody to serine 491 of said Dab1 in such biological sample indicates the presence of Cdk5 serine kinase activity in said sample.
- Claim 33-34 (Canceled)
- Claim 35 (Previously Presented) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises immunoprecipitation of human Dab1 encoded by the sequence set forth in SEQ ID NO:5 from said biological sample; contacting the immunoprecipitated Dab1 with a phosphoantibody generated using SEQ ID NO:3 having a phosphorylated serine at position 8 of SEQ ID NO:3 as an antigen; detecting binding of the phosphoantibody to serine 491 of said Dab1, wherein binding of the phosphoantibody to serine 491 of said Dab1 in such biological sample indicates the presence of Cdk5 serine kinase activity in said sample.

Claim 36

(New) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises determining whether the carboxy terminal domain of Disabled 1 protein (Dab1) in said sample is phosphorylated on a serine within a candidate sequence preferred by cdk5 activity, wherein phosphorylation of Dab1 on said serine indicates the presence of active Cdk5 in said sample.

Claim 37

(New) The method of claim 36 wherein said serine is selected from the group consisting of a serine corresponding to position 3 of QSSPSK (SEQ ID NO:1), such position being determined by alignment of Dab1 with reference to amino acid positions of SBQ ID NO:1 and a serine at position 21 of SSASHVSDPTADDIFEEGFESPSK (SBQ ID NO:2), such position being determined by alignment of Dab1 with reference to amino acid positions of SBQ ID NO:2.

Claim 38

(New) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises immunoprecipitation of Dab1 from said biological sample; contacting the immunoprecipitated Dab1 with a phosphoantibody generated using SBQ ID NO:3 having a phosphorylated serine at position 8 of SEQ ID NO:3 as an antigen; detecting binding of the phosphoantibody to a serine within a candidate sequence preferred by cdk5 activity in the carboxy terminal domain of said Dab1, wherein binding of the phosphoantibody to said serine of said Dab1 in such biological sample indicates the presence of Cdk5 serine kinase activity in said sample.

Claim 39

(New) A method for detecting cyclin dependent kinase 5 (Cdk5) serine kinase activity in a biological sample, which method comprises determining whether Disabled 1 protein (Dab1) in said sample is phosphorylated on a serine selected from the group consisting of a serine corresponding to position 491 of the amino acid sequence encoded by the nucleotide sequence of GenBank Accession number 1771281 and a serine corresponding to position 515 of the amino acid sequence encoded by the nucleotide sequence of GenBank Accession number 1771281, wherein

phosphorylation of Dab1 on said serine indicates the presence of active Cdk5 in said sample.

(New) A method for detecting cyclin dependent kinase 5 (Cdk5) active

kinase activity in a biological sample, which method comprises

determining whether the carboxy terminal domain of Disabled 1 (Dab1)

protein comprising SEQ ID NO:3 in said sample is phosphorylated on

serine within a candidate sequence preferred by Cdk5 kinase activity,

wherein phosphorylation of Dab1 on said serine indicates the presence of active Cdk5 in said sample

active Cdk5 in said sample